

#### ABSTRACT OF THE DISCLOSURE

A process of cleaning a semiconductor manufacturing system, and a method of manufacturing a semiconductor device. The cleaning process includes, for example, positioning a ceramic cover on the electrostatic chuck in tight contact with the chuck, and feeding a fluoride-based cleaning gas into a chamber. After the cleaning process, a process of forming a semiconductor film (deposition process) is performed. It is possible to prevent fluorine degasification from a substrate-supporting electrode (electrostatic chuck) during the deposition process. A semiconductor film can be formed without causing a temperature drop near the substrate. This prevents irregular film thickness, defective etching, film flaking, etc.